

§ 5.6 (d)(4): Preliminary Issues and Studies List

In accordance with FERC guidance under § 5.6 (d)(3), a characterization of the various resources was prepared based on best available information as prescribed by a due diligence process. This exercise has resulted in a pre-application document which summarizes project plans, quantifies existing resources, and estimates impacts while addressing mitigative measures. The PAD does not require an economic analysis of the project; however, a decision to proceed with a notification of intent (NOI) reflects an internal assessment of the benefit to cost ratio based on a formulation which balances production considerations with regulatory guidelines. The PAD / NOI was prepared with an understanding of the process and with the belief that the project will be deemed environmentally acceptable. This position has been re-enforced by this exercise based primarily on the conclusion that natural tidal variations (i.e., 12' during neap tide and nearly 26' during spring tide conditions) has established an environment with sufficient capability to adapt to a 2-3 foot increase in the level of low tide within an impoundment with an average tidal range of nearly nineteen feet. The actual impacted area (i.e., low spring tide zone) is muddy or composed of ledge and is not considered commercially productive and recreationally desirable.

(4) Preliminary issues and studies list. Based on the resource description and impacts discussion required by paragraph (d)(3) of this section; the pre-application document must include with respect to each resource area identified above, a list of:

§ 5.6 (d)(4)(i): Issues Identification

(i) Issues pertaining to the identified resources;

From the perspective of Tidewalker Associates, the issues which have emerged within §5.6 (d)(3) (i) – (xiii) are summarized below for the respective sections:

(d)(3)(i) – In terms of project specifications, a decision is still pending on the selection of a rockfill dam or tidal wall which would affect project impacts. Tidewalker is leaning towards a tidal wall; however, stakeholder interests in a secondary road and / or rail capability might ultimately influence the final decision. Tidewalker wishes to consider both options within the consultation process. A similar question remains on the installation of emptying / filling gates on the Passamaquoddy Bay side of Half-Moon Cove. A decision on this option depends on stakeholder input and potential mitigative measures associated with wetland alteration. The mode of operation has been set and a refinement of the 2-3 foot estimate for the increase of low tide will have to be finalized within the consultation framework.

(d)(3)(ii) – For geological and soil resources, Tidewalker Associates assume that sufficient information has been provided to verify the geological integrity of the site through a previous assessment which considered seismic loading on a rockfill dam. A similar analysis might be needed for the tidal wall; however, existing data indicates

suitable conditions for driving piers into the ground at the entrance to Half-Moon Cove. Since the project will not change the elevation of high tide, an issue related to soil erosion does not seem to exist around the perimeter of the proposed impoundment.

(d)(3)(iii) – Since the proposal is different than a typical hydro-electric project, concerns related to water resources does not seem to exist in a substantive sense. The predictability of tidal flow also provides an assurance that sufficient water will be available to generate electricity in accordance with project specifications. The variation in some parameters (e.g., temperature) will have to be considered in some detail; however, impacts associated with increasing low tide level by 2-3 feet are assumed to be substantially absorbed by the ability of the present environment to function under a varying tidal cycles which ranges from 12 feet to 26 feet in vertical measurements.

(d)(3)(iv) – For fish and aquatic resources, an issue related to commercial access to Half-Moon Cove will have to be addressed during the consultation phase. Since the project allows tidal water to ebb out and flood into the proposed impoundment through slow rotating turbines and relatively large emptying / filling gates, the impacts on fish and aquatic resources do not seem significant based on best available information. The impact on shellfish harvest is also considered as being non-substantive due to species distribution and due to the ability of the environment to adapt to varying tide levels.

(d)(3)(v) – Birds will be impacted by the net reduction in intertidal habitat; however, the availability of other feeding grounds in the region seem sufficient for the existing population. Other wildlife and botanical resources also seem able to adapt to a varying tidal cycle which will be only slightly altered by the proposal and within the limits of normal changes (i.e., 2-3 feet for a region between lowest low tide and highest low tide which experiences a difference of approximately 7 feet during a two week period).

(d)(3)(vi) – Issues related to wetlands are primarily focused on the entrance to Half-Moon Cove and will depend on the dam design. Impacts to riparian owners refer to the low end of the tidal spectrum and will be theoretically addressed in the Submerged Lands Lease with the state of Maine. The transition of approximately 140 acres of sometimes intertidal habitat to permanently submerged land is an issue which will require attention and assessment.

(d)(3)(vii) – A significant issue does not seem to exist for impacts on rare, threatened, and endangered species which might be affected by the proposed project. Consultation with agencies and other stakeholders will decide if this conclusion applies based on the review of information and regulations.

(d)(3)(viii) – Issues related to adverse impacts on recreational resources and land use do not seem to apply for this project except for the previously impact on access to Half-Moon Cove.

(d)(3)(ix) – The project will make a change on the visual environment both in terms of the dam’s construction and the slight change to the tidal regime; however, Tidewalker does not envision an issue related to aesthetic impacts.

(d)(3)(x) – The only issue related to cultural resources seems to refer to the concern expressed by the Maine Historic Preservation Commission on the existence of a possible tribal archaeological site near the entrance to Half-Moon Cove.

(d)(3)(xi) – Socio-economic data from the Quoddy Bay LNG has been used to characterize conditions in the region. From Tidewalker’s perspective, the project’s size precludes any significant adverse socio-economic impacts and represents a positive element for the region’s economic stability. The only socio-economic issue might refer to the ability of commercial boats to enter Half-Moon Cove and to harvest marine resources in the same way that shellfish harvesters might be affected by the modified tidal regime; however, these impacts are considered manageable and not significant based on Tidewalker’s assessment.

(d)(3)(xii) – Consultation will be held with representatives from the Passamaquoddy Tribe. Most Tribal officials are familiar with the Half-Moon Cove project. Tribal concerns will be addressed in the consultation process.

(d)(3)(xiii) – Since the proposal will not create a permanent reservoir above the high tide level, river basin issues do not exist for this project.

§ 5.6 (d)(4)(ii): Potential Studies

<p><i>(ii) Potential studies or information gathering requirements associated with the identified issues;</i></p>
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Based on the issues listed above, the following potential studies and information gathering exercises are being proposed by Tidewalker Associates for consideration as part of the consultation process:

- ✓ Relative impacts associated with rockfill dam versus tidal wall method of construction
- ✓ Mitigative benefits of breaching causeway to Passamaquoddy Bay both in terms of resource and engineering values
- ✓ Refinement of resource characterization
- ✓ Impacts on water parameters (e.g., temperature) affected by proposed changes to tidal regime
- ✓ Consideration of boat access to Half-Moon Cove as related to proposed methods of accommodation and impacts on commercial / recreational resources
- ✓ Information gathering and assessment of impacts associated with a modified tidal flow regime
- ✓ Regulatory review on impacts on riparian rights

- ✓ Assessment of impact on commercial and recreational shellfish harvesting
- ✓ Assessment of impacts on birds and other wildlife as related to the loss of intertidal habitat
- ✓ Archaeological investigation of site identified by Maine Historic Preservation Commission
- ✓ Confirmation on possible impacts on rare, threatened, and endangered species
- ✓ Continuation of dialogue with local communities and stakeholders
- ✓ Immediate initiate of discussions with representatives of the Passamaquoddy Tribe

During this period, Tidewalker Associates will continue with plans outlined in the FERC preliminary permit to: (1) complete engineering analysis; (2) work with manufacturers to optimize turbo-generator design; (3) initiate purchase power agreements; (4) address legal / institutional issues; and, (5) complete other licensing and permitting requirements (e.g., water quality certification).

§ 5.6 (d)(4)(iii): Reference Plans

(iii) Relevant qualifying Federal and state or tribal comprehensive waterway plans; and

Based on a due diligence effort, the proposed project does not seem to have any impacts on existing and relevant Federal and State of Maine comprehensive waterway plans.

§ 5.6 (d)(4)(iv): Relevant Resource Management Plans

(iv) Relevant resource management plans.

Based on a due diligence effort, the proposed project does not seem to have any conflicts with existing and relevant resource management plans.

§ 5.6 (d)(5): Summary of Contacts:***(5) Summary of contacts.***

An appendix summarizing contacts with Federal, state, and interstate resource agencies, Indian tribes, non-governmental organizations, or other members of the public made in connection with preparing the pre-application document sufficient to enable the Commission to determine if due diligence has been exercised in obtaining relevant information.

A summary of contacts with stakeholders appears in Appendices HMC-01, HMC-02, HMC-04, and HMC-06. In summary, Tidewalker Associates has attempted to comply with FERC pre-consultation requirements during the period of the FERC preliminary permit and during the preparation of the pre-application document. Historical information from the 1970s and 1980s when regulators reviewed a more extreme version of the Half-Moon Cove project which would have decreased the tidal range within the impoundment by more than 50% provides some historical perspective of the project.

In July 2008, an attempt was made to initiate preliminary discussions with Maine DEP on issues related to the proposed dam at the entrance to Half-Moon Cove. A PAD and NOI had been submitted to FERC in April 2008 which was later withdrawn in order to address some deficiencies. In July 2008, contact was made with Maine DEP and other State of Maine agencies to initiate discussions on the proposed tidal dam. In a response, Maine DEP responded by stating that “until you (N.Laberge) have prepared and distributed the required NOI and PAD and FERC has found these documents acceptable for processing, there is no purpose served in meeting with DEP or other regulatory agencies”. Maine DEP had concluded that the April 2008 PAD was “patently deficient”.

In April 2008, FERC had also added one additional year for the submittal of a PAD / NOI. In October 2008, FERC issued a clarification on the purpose of the one year extension. Due to the July 2008 response from the State of Maine, contacts were limited with regulatory agencies until an e-mail was sent to regulatory agencies and stakeholders in January 2009 requesting information under the “due diligence” clause of the PAD process. This revised PAD included review of some sections by FERC personnel to ensure compliance with formatting and content standards. The original PAD included a hybrid dam and hydro-kinetic configuration which complicated the review process. Since September 2008, the proposal has excluded hydro-kinetic components. This PAD attempts to strictly adhere to FERC standards and has provided information in a style which should allow for direct review. The inclusion of additional interaction with regulatory agencies and stakeholders also comprehensively addresses limitation in the April 2008 submittal.

In December 2008, State of Maine created an Ocean Energy Task Force (OETF) which has considered tidal dams / barrages as part of the scope of review. Tidewalker

Associates has attended meetings and participated in conference call and information transfer. The existence of OETF allows for a comprehensive review of tidal dams and other sources of ocean energy (e.g., wave).

During March 2010, Tidewalker Associates met with the Eastport City Council to discuss the Half-Moon Cove tidal project. A concern was raised on the potential impact on fisherman. Dr. Laberge agreed to meet with the Cobscook Bay Fishermen Association in April 2009 to discuss project impacts. This was the only concern raised by the City Council of Eastport.

As a final footnote, an extensive schedule of contact with regulatory personnel was established in the 1970s and 1980s on plans for the construction of a dam at the entrance to Half-Moon Cove. In that case, the impacts were more severe since the tidal range decrease in the impoundment approached 50%; however, many of the environmental variables have remained unchanged (e.g., land use) during the passing decades. This record of historical regulatory contact still has relevance today as illustrated by the recent comments from the State of Maine Historic Preservation Commission.

§ 5.6 (e): PURPA Benefits:

(e) If applicable, the applicant must also provide a statement of whether or not it will seek benefits under section 210 of the Public Utility Regulatory Policies Act of 1978 (PURPA) by satisfying the requirements for qualifying hydroelectric small power production facilities in § 292.203 of this chapter. If benefits under section 210 of PURPA are sought, a statement of whether or not the applicant believes the project is located at a new dam or diversion (as that term is defined in § 292.202(p) of this chapter), and a request for the agencies' view on that belief, if any. [Order 2002, 68 FR 51121, Aug. 25, 2003; 68 FR.

In order to address this issue, a thorough review of 18 C.F.R. § 292.203 was performed along with references to the following sub-sections 292.204(a), 292.204(b), 206, and 292.208. At this time, Half-Moon Cove would seem to qualify by virtue of the construction of a new dam with a capacity less than 80 MW, with facilities planned within a one mile radius, with ownership by a person with less than 80 percent interest in generating electricity, and with a boundary outside of a unique recreational, cultural, or scenic area. FERC will have to decide on the project not having a substantial adverse effect on the environment [§292.202(q)] and on appropriate fish and wildlife resources. Tidewalker Associates thinks that it will be able to meet these presently indeterminable standards and will qualify for PURPA benefits.